

# Impact of the Ukrainian conflict on the DORIS network

Chauveau Jean-Pierre (CLS) - Olivier Dumond (CNES)

## Loss of DORIS beacons

- Badary turned off on Russia demand (April 2022)
- Krasnoyarsk permanently removed (emission stopped since february 2018)

## Impact on the coverage

- Depends on the satellite altitude
- Worst case at S-3A altitude: 23mn without data instead of 6mn



Image courtesy of Jérôme Saunier (IGN)

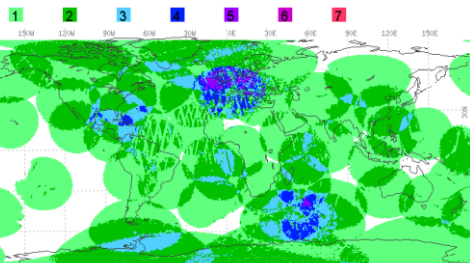


Coverage of SENTINEL3A orbit by the DORIS network

Period processed : from 01/12/2021 to 01/03/2022

Coverage rate : 79,32%

Nb of measurements received by OBSW at each sequence :

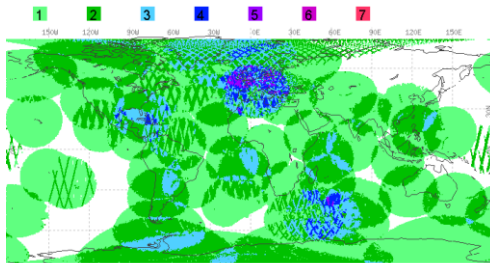


Coverage of SENTINEL3A orbit by the DORIS network

Period processed : from 01/05/2022 to 01/08/2022

Coverage rate : 78,18%

Nb of measurements received by OBSW at each sequence :



## Workaround: new sites under consideration

- Changchun in China
- Ulaanbataar in Mongolia
- Japan?

## Increase of signal perturbations over Europe

In « jamming » mode the DORIS receiver listen to frequencies around the nominal frequencies (401.25MHz and 2036.25MHz)

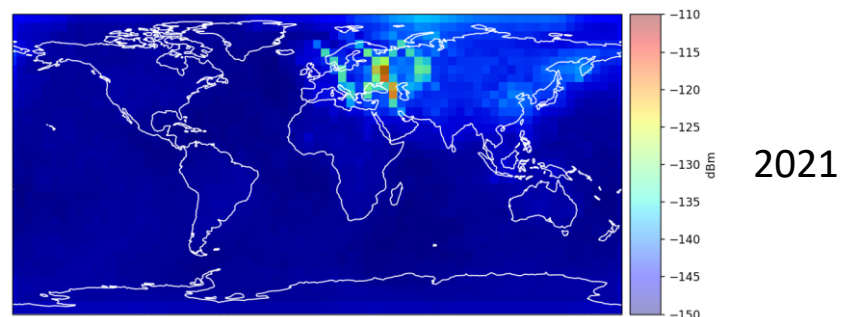
Every year a jamming campaign is realized onboard Sentinel-3A and Sentinel-3B (one week in June)

On the 401.25Mhz channel: known on-ground jammers over Europe (wide band jammers) of variable intensities from one day to another

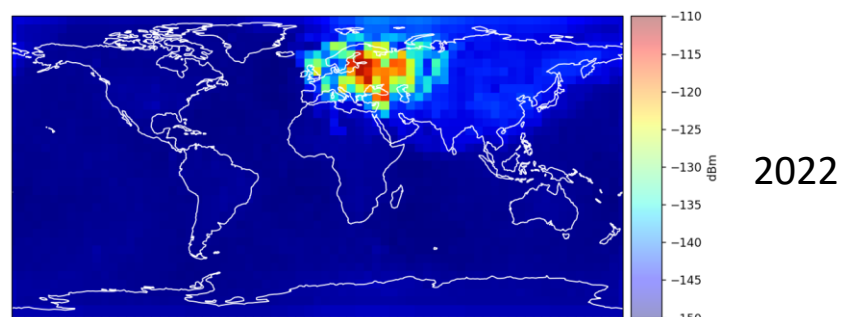
Between June 2021 and June 2022 the jamming is significantly increased on the 401.25Mhz channel

400MHz bandwidth is used for UHF radio-transmission

2036.25 channel is not impacted



2021



2022

**Limited impact** as the DORIS iono-free measurement comes mainly from the 2036.25MHz channel